Chapter Five

Transportation Deficiencies, Issues, and Projects

Bay County Road Commission
City of Bay City
City of Essexville
Michigan Department of Transportation
Bay Metro Transit Authority
Transit Project List
Adopted Project List
Environmental Mitigation

Transportation Deficiencies, Issues, and Projects

The center or focus of the Metropolitan Transportation Plan is a list of specific projects, (see page 10 of chapter 5) which have been developed by BCATS. Each project must meet an identified transportation need, primarily addressing capacity and maintenance deficiencies and improving safety. Under SAFETEA-LU guidelines, each project must be fundable within anticipated financial resources.

The following is a list of projects that may be programmed into the Transportation Improvement Program (TIP):

A. Identified capacity deficiencies from the 2005 transportation network loaded with 2005 traffic volumes (existing problem areas).

B. Identified capacity deficiencies from the 2005 transportation network loaded with 2035 traffic volumes (expected future problem areas).

C. Maintenance type deficiencies (reconstruction or resurfacing needs) identified from ongoing pavement management practices of the implementing agencies and BCATS.

D. Intersections identified as having existing or potential capacity or safety related issues from review of accident data or lane capacity analysis.

E. Area wide or systemwide issues or potential projects needing transportation systems management solutions or further study. May include transportation enhancement and/or other intermodal solution.

A major priority is roadway repair and preservation. There are approximately 355 miles of federal-aid routes within the BCATS area. About 227 miles are under local jurisdiction and about 128 miles are under state jurisdiction. BCATS, through funding from the Asset Management Council, has rated the condition of these roadways since 2003. Working closely with the road agencies, pavement management practices will be reviewed. It is a goal to upgrade the pavement condition of these roadways so that 75% are rated good or excellent by 2012. Fair or poor rated roadways should not be more than 25% by 2012. In addition, it is a goal to upgrade roadways classified as principal arterials in our community (Wilder Road, Euclid Avenue, etc.), so that 80% are rated good or excellent and only 10% are rated as fair or poor by 2020.

Deficiency Ratings by Agency in the Tri-County Travel Demand Model: 2035

Bay County Road Commission

2005 CAPACITY DEFICIENCIES

- Three Mile Rd - M-84 to Freeland Rd

2035 CAPACITY DEFICIENCIES

- Wilder Rd -- Euclid Ave to Truman Parkway
- Mackinaw Rd – US-10 and Tech Dr. (Potential capacity issue due to increase development at the Valley Center Technology Park and Fabiano Bros. Distribution Center)

Maintenance Deficiencies

Segments

- 3 Mile Rd - M-84 to Amelith & Wilder Rd to Midland Rd
- *Bay Arenac Dr (Skill Center Dr)*
- Beaver Rd - I-75 to M-13
- Chip Rd - Mackinaw Rd to Old Beaver Rd (Fraser St in Kawkawlin)
- Euclid Ave - M-84 to Hotchkiss Rd (drainage)
- Hotchkiss Rd - 7 Mile Rd to Mackinaw Rd
- Killarney Beach Rd - North of Euclid Ave
- Mackinaw Rd - Delta Rd to Freeland Rd
- Midland Rd - Mackinaw Rd to 2 Mile Rd
- North Union Rd- 2 Mile Rd to Euclid Ave
- Old Kawkawlin Rd - M-13 to State Park Dr
- Pine Rd - M-25 to Cass Ave
- Pine Rd - Nebobish Ave to M-25
- Ridge Rd - Bay City City Limits to Scheurmann Rd
- Scheurmann Rd - Youngs Ditch to M-25
- State St - Wheeler Rd to Wilder Rd
- Shady Shores Dr - Patterson Rd to Saginaw River
- Trumbull St- 22nd St to North of Cass Ave
- Weadock Hwy/Pine Rd -Railroad Crossing to Karn-Weadock Power Plant
- Wilder Rd - Patterson Rd to Tiernan Rd
- Youngsditch Rd - Pine Rd to Knight Rd

Intersections

- 2 Mile / Wilder (safety)
- Old Kawkawlin/State Park Drive (safety, capacity)
- Pine / Center (Safety, realignment)
- Pine / Youngsditch (safety, capacity)
- Ridge Rd / Scheurmann Rd (realignment)
- State Park Drive / Wilder (safety, capacity)
- Truman Parkway / Wilder (safety, channelization)

*Safety issues were determined by crash history, alignment, local knowledge and/or design deficiencies.

Issues

- Access Management
- All-season roadway network (truck related)
- Changing land-use impacts on transportation facilities
- Closing of Monitor Road south of Wilder Rd and diverting traffic to Bay-Arenac Dr
- Interconnection of traffic signals along all corridors
- Railroad crossings (at grade)
- *Add Bay Arenac Dr (Skill Center Dr) to the federal aid eligible road network*

City of Bay City

2005 CAPACITY DEFICIENCIES

- Kosciuszko Ave -- Madison Ave to Johnson St
- Midland St -- M-13 (Euclid Ave) to Henry St
- N. Water -- Woodside to Essexville city limits
- Trumbull -- Woodside Ave to M-25 (Center Ave)

2035 CAPACITY DEFICIENCIES (those from 2005 plus the following)

- No Additional

Maintenance Deficiencies

Segments

- Henry St - Wilder to North Union
- Johnson St - Center to 11th St
- Lincoln St - 22nd St to Fremont
- McKinley St - Johnson to Trumbull
- Midland St - Euclid to Wenona
- North Union St - Henry to State
- Ridge Rd - Columbus Ave to City Limits
- Smith St - State to Patterson
- Trumbull St - Woodside Ave to M-25 (Center Ave)
- Washington Ave - Woodside to 7th St
- *Water St/Harrison St - 32nd St to McGraw St*
- Wenona Ave - North Union to Ionia
- Woodside Ave - Liberty Bridge to Trumbull St

Intersections

- Vermont / Walnut (capacity)
- Marquette / Ohio / Walnut (capacity, turning movements, safety)
- Henry / Vermont (capacity and timing)
- State / Wilder (capacity)
- Woodside/Trumbull (safety)

Issues

- Railtrail crossings
- Operation and maintenance of moveable bridges
- Mast-arm signal replacements
- Interconnection of traffic signals along various corridors

- All season roadway network (truck related)
- Access Management
- Land-use impacts on transportation facilities
- Route Rationalization - Extension of M-15 along Trumbull St and Wilder Rd to I-75
- Traffic signal removal at unwarranted locations
- Center Avenue Historic Heritage Route
- Trumbull St/M-15/Wilder Rd Corridor Study
- *Add Harrison St south of Cass Ave to McGraw St and McGraw St from Harrison to M-13 to the federal aid eligible road network*

City of Essexville

2005 CAPACITY DEFICIENCIES

- Borton Avenue - West City Limits of Bay City (N. Water) to Woodside

2035 CAPACITY DEFICIENCIES (those from 2005 plus the following)

- No Additional

Maintenance Deficiencies

Segments

- Borton Avenue - Caroline to Scheurmann
- Woodside Avenue - Scheurmann St to Pine

Intersections

- Woodside Ave & Scheurmann St
- Woodside Ave & Main St

Issues

- Streetscaping along all federal-aid routes
- Intermodal connection to port facilities
- Access Management
- Transportation facilities needed as a result of changing land-uses
- Transportation Enhancement and local Safety projects
- All-season roadway network (truck related)

Michigan Department of Transportation

2005 CAPACITY DEFICIENCIES

- M-13/M-84 (Lafayette Bridge) & Lafayette Street – Water to Garfield
- M-13/M-84 Salzburg Avenue – Euclid to Wenona
- M-25 (Veterans Memorial Bridge)

2035 CAPACITY DEFICIENCIES (those from 2005 plus the following)

- M-13 Euclid Ave - Midland St to Westbound M-25 Jenny St
- M-84 Westside Saginaw Rd - Hotchkiss Rd to 2 Mile Rd
- I-75 - South of US-10 to Saginaw Co Line and on into Saginaw Co. to I-675
  - Peak Capacity issues during the summer tourism and recreation seasons (not shown in the model)

Maintenance Deficiencies

Segments

- M-25 (Center) - Johnson to Livingston
- I-75 - US-10 to south county line
- M-84 - M-25 to 15th St (Concrete Road)
- M-84 - 15th St to Lafayette Ave (Asphalt Road)
- M-84 - Delta Rd to Euclid Ave

Intersections

- M-84, Lafayette / Garfield
- M-13/M-84, Lafayette / Broadway
- M-25 (Center) at Trumbull
- M-13 (Euclid Ave) / M-84 Salzburg (safety, capacity)
- M-13/I-75 Connector at Wilder Rd and Monitor Rd (capacity, safety)
- Signal progression at intersections along M-25 and M-13 corridors

Issues

- US-10 & Mackinaw Rd road interchange (relocation of Fisher Rd and safety)
- US-10 & Garfield Rd road interchange (relocation of Fisher Rd and safety)
  - Outside of the BCATS area but has significant impact to the transportation network as the route to the regional Airport
- See State Long Range Transportation Plan Strategies, Appendix A. regarding highway, bridge, truck, carpool, access management, ridesharing, non-motorized, public transportation, regional rail, intercity bus, air, marine and intercity rail issues.

Bay Metro Transit Authority Projects

Vehicle Replacement

Bay Metro currently operates 46 buses and 12 vans. The estimated useful life for the smaller buses is 7 years, for the medium buses is 10 years, and for the larger buses is 12 years. Useful life for vans is 4 years or 100,000 miles. Due to the significant effort placed on maintaining the fleet, the useful lives of BMTA vehicles are typically extended as follows:

Small buses:7 years extended to 15-18 years
Medium buses:10 years extended to 18-20 years
Large buses:12 years extended to 18-20 years
Vans:4 years extended to 5-6 years

Based on these estimates, all 46 buses will need to be replaced during the life of the Metropolitan Transportation Plan and 27 buses will need to be replaced a second time. All 12 of BMTA vans will also need to be replaced 5 times in this time frame, (see the Transit Projects table on the following page for more details).

Facilities

Our current facility which houses maintenance, operations and administrative functions of the transit system is 56,000 square feet and was completed in 1981 at a cost of $3.5 million. The building is presently 26 years old but is in very good condition and should continue to be functional for many more years. However, it will be reasonable to consider either a major renovation or building replacement during the term of the Metropolitan Transportation Plan terminating in the year 2035. The facility will reach 40 years of age in the year 2021 and planning for its replacement/ upgrade should have begun by that time. Assuming a building of similar size and function the cost estimate [for a new building] would be about $12,000,000 in 2021.

The intermodal central bus station, located in downtown Bay City, serves both the local transit system and intercity carriers. It was completed in 1991. Constant bus traffic, especially by the much heavier intercity coaches, takes a significant toll on the pavement. Concrete drives on the site have already been replaced one time at a cost of about $250,000. It is expected that these replacements will need to be done every 15 years, so there should be two more large concrete replacement jobs during the Metropolitan Transportation Plan, the first in 2015 and again in 2030. The terminal, itself, is relatively small, about 2,500 square feet, most of which is a glass enclosed lobby. It is very likely that a major renovation will be needed about 25 years into its life, that is, in the year 2016. The initial cost of construction [for the building alone] was about $500,000. A major renovation should only cost in the neighborhood of $200,000, since much work is being handled along the way. For

instance, a new roof was installed last year and a new heating/cooling system was installed three years ago.

Transit Projects

Year	Vehicle to be Replaced	Number of Vehicles	Cost Per Vehicle (5% increase/yr)	Total
2008	1987 Orion I2008	1	$300,000	$300,000
2008-2013	Lift Vans	12	$45,000	$540,000
2009	1994 Orion II1994	6	$315,000	$1,890,000
2011	1996 Orion II2011	7	$345,000	$2,415,000
2013	1998 Orion II2013	9	$380,000	$3,420,000
2014	1999 Orion II2014	4	$400,000	$1,600,000
2014-2019	Lift Vans	12	$56,000	$672,000
2015	Concrete Replacement at Bus Terminal	1	$525,000	$525,000
2016	Bus Terminal renovations	1	$200,000	$200,000
2020	2002 Gillig2020 (40ft.)	3	$480,000	$1,440,000
2020	2002 Gillig2020 (30 ft.)	7	$460,000	$3,220,000
2020-2025	Lift Vans	12	$70,000	$840,000
2021	Maintenance & Administration Building Replacement	1	$12,000,000	$12,000,000
2022	2007 Thomas2022	6	$500,000	$3,000,000
2023	2008 Thomas2023	3	$520,000	$1,560,000
2026	2008 Replacement	1	$600,000	$600,000
2026-2031	Lift Vans	12	$86,000	$1,032,000
2027	2009 Replacement	6	$630,000	$3,780,000
2029	2011 Replacement	7	$690,000	$4,830,000

Year	Vehicle to be Replaced	Number of Vehicles	Cost Per Vehicle (5% increase/yr)	Total
2030	Concrete Replacement at Bus Terminal	1	$1,093,000	$1,093,000
2031	2013 Replacement	9	$760,000	$6,840,000
2032	2014 Replacement	4	$790,000	$3,160,000
2032-2035	Lift Vans	12	$105,000	$1,260,000
	Replacement Totals	**125**		**$56,217,000**

Transportation Projects

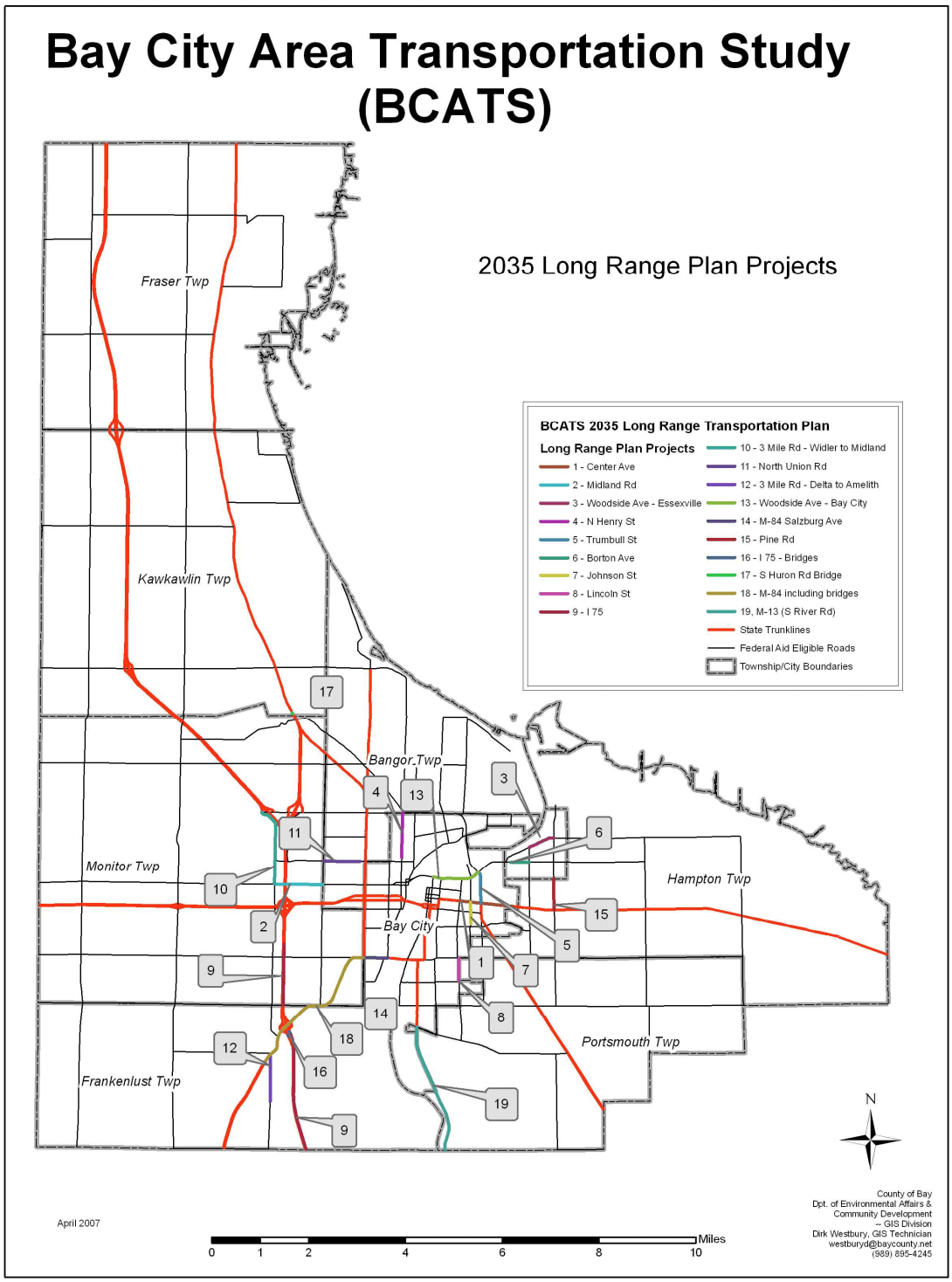
The following transportation projects are specifically identified as part of this BCATS 2035 Plan. These projects have an identified source of funding, thus ensuring a financially constrained plan. Additional funding that is available after these projects are constructed is currently appropriated for operations and maintenance of the transportation network.

Road	Location	Project Type	Year	Cost (x1000)
I-75	Hotchkiss Rd to .4 mile north of Salzburg Rd	Reconstruction and widening into the median one lane in each direction, construction of a median barrier wall and drainage extensions.	2008	*$13,500*
N. Henry St	North Union St to Wilder Rd	Reconstruction - Reduced to 2 through lanes and a center turn lane	2008	$3,403
North Union	2 Mile Rd to Woodbirdge St	Crush & Shape	2008	$250
Pine Road	M-25 to Nebobish	Reconstruction - Addition of center turn lane	2008	*$1,275*
Woodside Ave (Bay City)	Liberty Bridge to Trumbull St	Resurface (Partial Funding)	2008	$1,135
M-25 (Center)	Johnson to Livingston	Reconstruction	2009	$3,510
3 Mile Rd	Amelith to M-84	Crush & Shape	2010	*$380*
3 Mile Rd	Wilder Rd to Midland Rd	Crush & Shape	2010	*$580*
Borton Ave	Caroline to Scheurmann St	Resurface and railroad crossing improvements	2010	*$375*

I-75 Bridges	Bridges over Dutch Creek	Deep Overlay	2010	$1,770
M-13 (S Huron Rd)	Bridge over Kawkawlin River	Deep Overlay	2010	$860
I-75	Saginaw County Line to south of the M-84 interchange	Reconstruction and widening into the median one lane in each direction, construction of a median barrier wall and drainage extensions.	2011	$19,000
Midland Rd	3 Mile Rd to 2 Mile Rd	Reconstruction - Addition of center turn lane	2011	$2,033
M-13 Bridge	Over Cheboyganing Creek	Replacement	2012	$1,270
M-84 Bridges	Over Dutch Creek and Squaconning Creek	Replace bridge over Squaconning Creek and culvert over Dutch Creek	2011	$2,644
Trumbull St	Woodside Ave to M-25 (Center Ave)	Reconstruct	2012	*$1,965*
Woodside Ave (Essexville)	Scheurmann St to Pine St	Resurface and reconstruct two intersections	2012	*$575*
Johnson St	Center Ave to 11th St	Reconstruction	2013	$1,460
Lincoln St	22nd St to Fremont St	Reconstruction	2014	$1,518
M-13	McGraw St to Zilwaukee Bridge	Resurface	2015	$5,450
M-84	M-13 to Wenona	Reconstruction	2015	$2,277
I-75	*Squaconning Creek to Hotchkiss Road, Over Squaconning Creek AND M-84 over I-75*	*Including I-75 Interchange and I-75 between Hotchkiss and Squaconning Creek*	*2009*	*$17,972*
M-84	Delta Rd to M-13	Reconstruction and widen	*2009*	*$18,800*
2008 Totals				***$19,563***
2008-2011 Totals				***$51,985***
2008-2020 Totals				***$77,386***

In table 2, Comparison of Estimated Revenue and Expenditures by Funding Source, located in Chapter 7 Page 6, indicates that *$420,612,180* is available for unassigned preservation and maintenance projects. This unallocated estimated revenue will go towards general rehabilitation/resurface projects not yet identified at this time to assist in the maintenance, preservation and efficiency of the existing BCATS transportation system.

The implementing agencies have used various inflation factor in determining future cost projections. The City of Essexville used an inflation factor of 8%, while MDOT and the City of Bay City used 4%, Bay Metro Transit Authority used 5% and the Bay County Road Commission used a 3% inflation factor to determine future transportation project costs.


Bay City Area Transportation Study (BCATS)
2035 Long Range Plan Projects
BCATS 2035 Long Range Transportation Plan
Long Range Plan Projects
1 - Center Ave
2 - Midland Rd
3 - Woodside Ave - Essexville
4 - N Henry St
5 - Trumbull St
6 - Borton Ave
7 - Johnson St
8 - Lincoln St
9 - I 75
10 - 3 Mile Rd - Widler to Midland
11 - North Union Rd
12 - 3 Mile Rd - Delta to Amelith
13 - Woodside Ave - Bay City
14 - M-84 Salzburg Ave
15 - Pine Rd
16 - I 75 - Bridges
17 - S Huron Rd Bridge
18 - M-84 including bridges
19, M-13 (S River Rd)
State Trunklines
Federal Aid Eligible Roads
Township/City Boundaries
Fraser Twp
Kawkawlin Twp
Bangor Twp
Monitor Twp
Bay City
Hampton Twp
Portsmouth Twp
Frankenlust Twp
N
April 2007
Miles
0 1 2 4 6 8 10
County of Bay
Dpt. of Environmental Affairs & Community Development
– GIS Division
Dirk Westbury, GIS Technician
westburyd@baycounty.net
(989) 895-4245

Environmental Mitigation

BCATS has inventoried the following Environmental Sensitive Resources in the BCATS area using Geographic Information System (GIS) technology along with local knowledge. Maps of theses resources and the related Metropolitan Transportation Plan Projects can be see on pages 15 & 16 of chapter 5.

GIS Data Layers	Source
Flood prone areas	Michigan Center for Geographic Information (CGI) & FEMA
Historic Sites	Bay County GIS, Nat. Register of Historic Places & Michigan Department of History, Arts and Libraries
Heritage routes	Bay County GIS & MDOT
Wetlands	Michigan CGI
Cemeteries	Bay County GIS
Parks and Recreation Areas	Bay County GIS & Recreation Dept.
Lakes and Streams	Michigan CGI
Woodland	Michigan CGI - IFMAP/GAP
Non-motorized Trails	Bay County GIS & Saginaw Bay Greenways
Hydric Soils	Michigan CGI & Bay County Soil Survey Manual

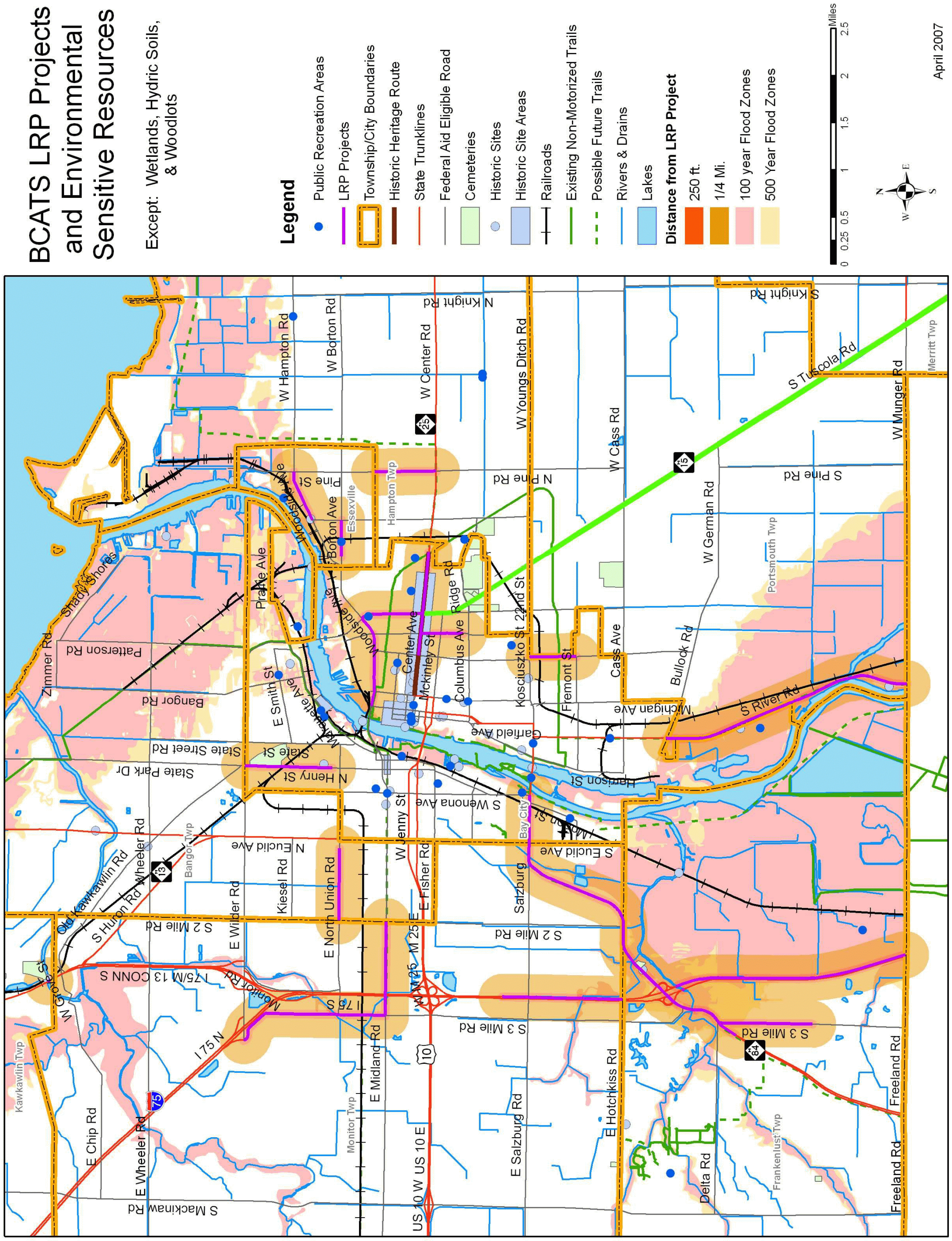
Of the 18 transportation improvement projects listed on pages 10 & 11 of chapter 5, only four projects will have expansion outside of the existing road surface, the remaining 14 are pavement reconstruction or resurfacing projects that would not expand the current roadway. Below are the number of possible project that may have an impact on the environmental sensitive resources within BCATS.

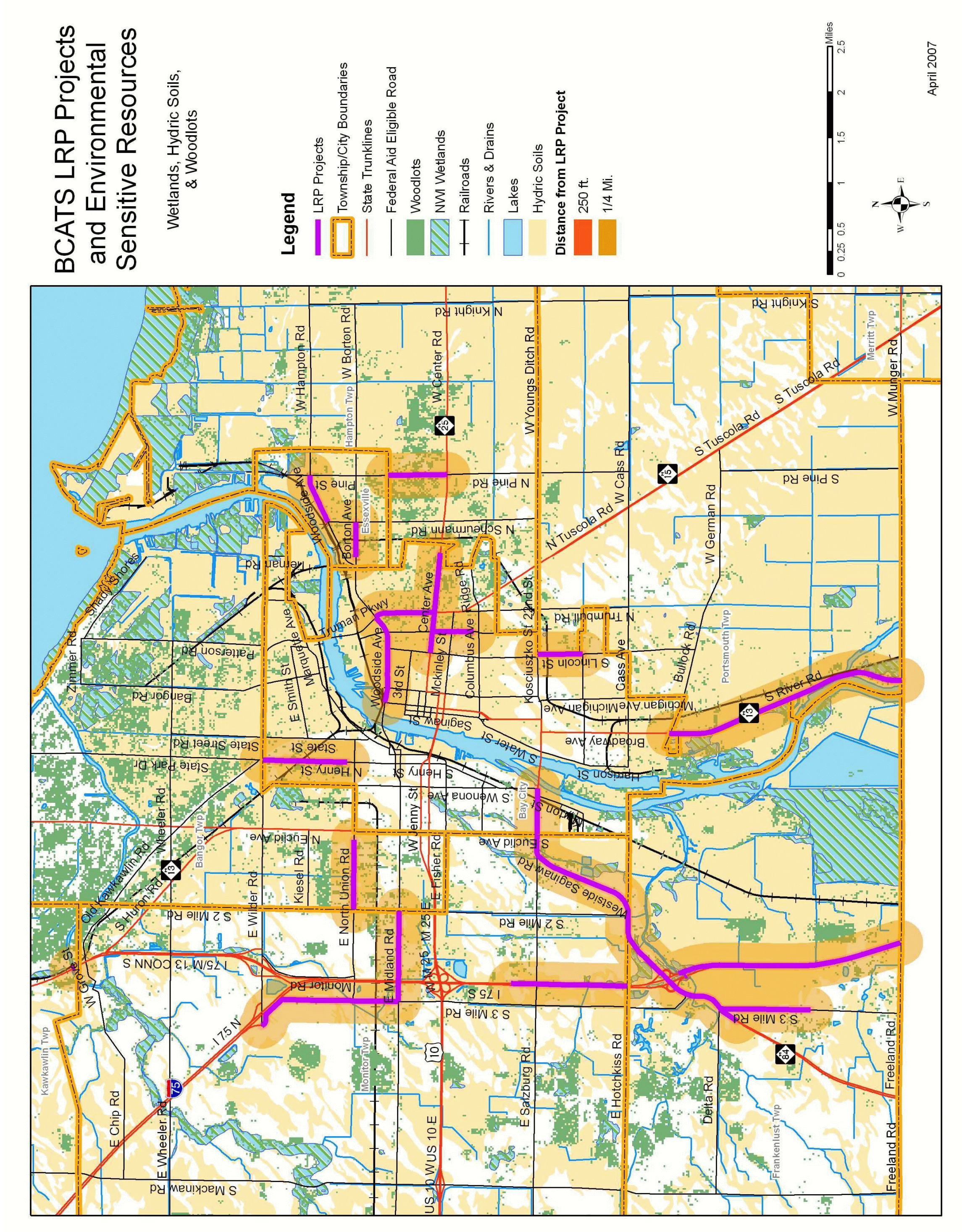
Env. Sensitive Resource	# of Expansion Projects	# of Pavement Projects
Flood prone areas (within 1320 ft.)	2	10
Historic Sites (within 250 ft.)	1	7
Heritage routes (within 250 ft.)	0	3
Wetlands (within 1320 ft.)	2	8
Cemeteries (within 250 ft.)	1	2
Parks and Recreation Areas (within 250 ft.)	0	3
Lakes and Streams (within 1320 ft.)	3	10
Woodland (within 1320 ft.)	4	8
Non-motorized Trails (within 250 ft.)	0	5
Hydric Soils (within 1320 ft.)	4	15

The analysis of possible impacts from planned transportation projects on environmental sensitive resources should not be used to infer that simply because an impact is possible, the transportation project is not justified. It is simply designed to draw attention to the range of possible impacts and to elevate the consideration of environmental resources in all phases of project planning, design, construction, and maintenance.

Of the expansion projects listed in the transportation plan (I-75, M-84, Pine Rd, and Midland Rd), MDOT has conducted an Environmental Assessment of the I-75 project in 2007. The Project Mitigation Summary for Preferred Alternative is included in Appendix B. The project is going to add a service lane into the median to maintain two travel lanes in each direction during the construction phase of the project. This service lane will be incorporated into the final project as an additional travel lane. The M-84 expansion project, which is currently deferred under executive order from the Governor, had an Environmental Impact Statement completed by MDOT in 1996 which is included in Appendix C.

BCATS and the implementing agencies in the area shall take appropriate measures to minimize the impact on these environmental sensitive resources for these and future project by using the guidelines set forth by the American Association of State Highway and Transportation Officials (AASHTO) Center for Environmental Excellence located on the Internet at http://www.environment.transportation.org/.


BCATS LRP Projects and Environmental Sensitive Resources
Except: Wetlands, Hydric Soils, & Woodlots
Legend
Public Recreation Areas
LRP Projects
Township/City Boundaries
Historic Heritage Route
State Trunklines
Federal Aid Eligible Road
Cemeteries
Historic Sites
Historic Site Areas
Railroads
Existing Non-Motorized Trails
Possible Future Trails
Rivers & Drains
Lakes
Distance from LRP Project
250 ft.
1/4 Mi.
100 year Flood Zones
500 Year Flood Zones
0 0.25 0.5 1 1.5 2 2.5 Miles
April 2007


BCATS LRP Projects and Environmental Sensitive Resources
Wetlands, Hydric Soils, & Woodlots
Legend
LRP Projects
Township/City Boundaries
State Trunklines
Federal Aid Eligible Road
Woodlots
NWI Wetlands
Railroads
Rivers & Drains
Lakes
Hydric Soils
Distance from LRP Project
250 ft.
1/4 Mi.
Miles
April 2007